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Textiles and Apparel in NAFTA

A Case of Constrained Liberalization

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and
Patrick Low

The paper examines the changes Mexico's textile and clothing industry is likely to face under NAFTA.

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This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to analyze the effects of trends toward growing regionalism in international trade. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Aban Daruwala, room S7-042, extension 33713 (October 1992, 43 pages).

Bannister and Low examine the changes that Mexico's textile and clothing industry is likely to face under the North American Free Trade Agreement (NAFTA). They compare pre-NAFTA and probable post-NAFTA scenarios for Mexican exports. The U.S. clothing and textile industry is likely to remain among the most protected of U.S. industries, so this is essentially a comparison of two protectionist situations, not of protection and free trade.

Bannister and Low trace how current quota and tariff restrictions on U.S. imports from Mexico will be replaced by rules of origin designed to protect U.S. industry. Mexican textile and clothing exports will enjoy greater access to the U.S. market if most inputs originate in North America.

Under the triple transformation requirement, for example, a cotton shirt would have to be made in the NAFTA region from yarn and fabric of NAFTA origin. Mexican compliance with this rule would not prove onerous. Proximity and long-standing production-sharing arrangements have made Mexico heavily dependent on U.S. inputs. Roughly 53 percent of Mexican textile and apparel exports to the United States fall under production-sharing programs, with an average 69 percent of value added of U.S. origin. Only 15 percent of input requirements for the other 47 percent of trade is imported into Mexico — only 8 percent from non-NAFTA countries.

What about future trade? Bannister and Low estimate that these Mexican exports to the United States will increase only modestly — partly because of the low level of protection already associated with production-sharing arrangements. Rules of origin will not restrict trade expansion.

The additional costs to the Mexican consumer of adopting rules of origin under the NAFTA are small.

How much investment from outside North America will be attracted to Mexico under stringent input-sourcing requirements is open to question. The competitiveness of Mexico's apparel industry in non-NAFTA markets will depend to some extent on the international competitiveness of the U.S. textile industry.

Textiles and Apparel in NAFTA
A Case of Constrained Liberalization

by

Geoffrey Bannister and Patrick Low*

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I. INTRODUCTION

The North American Free Trade Agreement (NAFTA) will not lead to free trade in all goods between Mexico, Canada and the United States. Trade barriers that already exist in a number of "sensitive" sectors will most probably be maintained through restrictive arrangements under the NAFTA. A particular case is the textiles and clothing sector, which has long enjoyed special protection in the United States and Canada, at levels significantly above the average. Mexico is one of approximately 40 countries whose exports of textiles and apparel face quota barriers in the United States market.[1] Maintaining quotas on textiles and clothing exports from Mexico will be inconsistent with NAFTA principles; some alternative arrangement will be required. This will involve a careful definition of the trade that qualifies for barrier-free treatment. Rules of origin, designed to ensure a high proportion of domestic (within NAFTA) content for products traded freely across NAFTA borders, will be the principal instrument for identifying eligible exports. If NAFTA content is insufficient, exports will be treated as if they originate outside the region, and be subject to tariffs and/or quotas.

This paper analyzes the implications of a NAFTA for U.S.-Mexico trade in textiles and apparel by comparing the pre- and possible post-NAFTA policy regimes. The analysis focuses exclusively on trade between Mexico and the United States. It asks whether there are additional benefits to Mexico's textiles and apparel sector from arrangements based on rules of origin, as compared to current arrangements that rely on tariffs and quotas. We examine three aspects of anticipated policy changes. First, we review the salient characteristics of the rules of origin regime likely to replace tariffs and

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[1] The principle instrument for restricting trade in textiles and clothing is the Multi-Fiber Arrangement (MFA), a multilaterally negotiated departure from normal GATT disciplines that permits developed countries to apply quotas on imports of a wide range of textiles and apparel items

quotas. The obvious advantage for Mexican industry of moving from the present quota and tariff regime to rules of origin is that production using within-NAFTA inputs will enjoy free access to the American market. A potential cost, however, is that rules of origin maintain some protection for the U.S. textile industry and restrict possible gains in Mexico from access to non-NAFTA imports. In addition there is the possibility that duty drawbacks, (exemptions from duty for extra-regional inputs for use in Mexico's maquiladora industry), will no longer be available for Mexican exports qualifying for NAFTA treatment. We examine the restrictiveness of rules of origin, given present trade flows and sourcing patterns for Mexican exports, and find that they will not prove onerous for the majority of Mexican exports as they stand today.

What about future trade flows? We calculate the trade creation and trade diversion effects for Mexican trade of moving from the existing quota and tariff regime to free trade. These calculations are linear projections, and they do not account for any complications introduced by rules of origin. Nevertheless they illustrate that effective trade barriers to Mexican exports in the U.S. are already very low, due to the high level of U.S. content already embodied in these exports. As a result, the trade increase from the removal of these barriers is moderate, and over 50 percent of this increase will take place in exports that currently enter the U.S. market under production sharing arrangements.[2] These exports already enjoy a high level of U.S. content. Our conclusion is that rules of origin will not significantly restrict these increases in trade either.

Finally, we examine the implications of the NAFTA rules of origin regime for Mexican consumers. We compare the rules of origin to a customs union with a common external tariff, set at U.S. levels of protection. The NAFTA negotiations have never contemplated establishing such a customs union, but it is a useful point of reference from which to examine the benefits of rules of origin. Under

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[2]Production sharing arrangements refer to imports entering the U.S. under heading 9802.00.80 of the Harmonized Tariff Schedule of the United States (HTS) under which imported that were assembled abroad using fabricated, U.S.-manufactured components are subject to duty only on that part of value added in the foreign country.

a free trade agreement rules of origin are superior to a customs union if they allow consumers to benefit from lower tariffs. In this case, any benefit accruing to Mexico will depend on Mexican tariffs being lower than U.S. tariffs (assuming that the common external tariff was set at U.S. levels of protection). We compare the dead-weight loss resulting from U.S. tariffs to that of Mexican tariffs, and find the difference to be negligible. This means that the additional benefits, beyond NAFTA liberalization, from rules of origin over a common external tariff are correspondingly small. Additional benefits to Mexican consumers from access to non-NAFTA inputs will depend on lowering Mexican tariffs.

II. THE U.S. TRADE REGIME AND TRADE FLOWS

3. trade policy

Four policy instruments control textile and clothing imports from Mexico into the United States: most-favored-nation (MFN) tariffs, the Multi-Fiber Arrangement (MFA), and two additional provisions, one controlling tariffs and the other quotas. MFN tariffs on textiles and clothing are higher than the average on all products. The trade-weighted average most-favored-nation (MFN) tariff is 18 percent for apparel, 9 percent for made-ups, 9 percent for fabrics, and 11 percent for yarns (Table 1). For the textiles and clothing sector as a whole, this amounts to an average tariff of 14 percent. The comparable tariff for U.S. industry is less than 5 percent.

Textiles and clothing have also been subject to quantitative restrictions at least since the 1950s, but the Multifiber Arrangement (MFA), the principle instrument for restricting textile trade, first came into being in 1974 (Cline, 1987). The MFA allows industrialized countries to negotiate quantitative restrictions on specific textile and clothing items with individual developing exporting countries. Authority also exists under the MFA to apply unilateral restrictions in the absence of agreement. The MFA has been used exclusively by industrial countries to restrict the exports of developing countries, although it is the exporters who administer agreed restrictions and supposedly enjoy the associated quota rents.[3] The MFA has been justified as a temporary exception to normal GATT trade disciplines. Nevertheless, it has been renewed three times, and the current arrangement, MFA IV, is due to expire on December 31, 1992.

[3]Note that Japan is the only industrial country which has MFA quotas imposed on its exports of textiles and apparel, and that the U.S. is the only country which imposes MFA quotas against Japan.

Table 1. Barriers Against Mexican Exports of Textiles and Apparel to the U.S., 1990

	MFN Tariff Rates	Effective Tariff Rates* 9802 Imports	MFA Normal Regime Quota Utilization Rates	MFA Special Regime Quota Utilization Rates
Apparel	18.3	6.5	60.0	63.1
Made-Ups	9.0	n.a.	68.3	n.a.
Fabric	8.9	n.a.	97.8	n.a.
Yarn	10.6	n.a.	40.2	n.a.
Total	14.0	6.5	43.6	63.1

Source: World Bank computer files on the MFA and U.S. Department of Commerce data.
*Effective Tariff Rates on 9802 imports are equal to the MFN tariff times the share of value added in Mexico.

Members of the MFA have committed on paper to make the agreement less restrictive. There is an obligation under MFA IV to expand the quotas by at least 6 percent per annum, with certain exceptions, including woollen items, where a 1 percent expansion is envisaged. In addition, certain mechanisms are available for carrying quotas over from one period to another and for borrowing from the quota of a subsequent period. In practice, the MFA has become increasingly restrictive, covering a greater proportion of world textile and apparel trade at each renewal (Erzan et al., 1990).[4]

The additional special textiles and clothing provisions developed by the United States build on the MFA and MFN regimes, but offer more favorable access to the U.S. market in exchange for the use of U.S. inputs in production. These are part of production sharing provisions in the United States, covered by Harmonized Tariff Schedule (HTS) subheadings 9802.00.60 (certain metal products) and 9802.00.80 (miscellaneous products, including textiles and clothing).[5] These provisions levy duties only on value added outside the United States. They accounted for 16 percent of total U.S. imports in 1989, compared to 10 percent in 1986 (USITC 2365, 1991). The average duty actually paid on clothing items from Mexico under HTS 9802.00.80 was 6.5 percent in 1990 (Table 1), little higher than the average for all products imported into the United States (U.S. Department of Commerce, 1990).

Textile and apparel imports with high U.S. content also enjoy liberal quota provisions under a program known as the Special Regime.[6] The Special Regime effectively eliminates quotas under the MFA for apparel assembled in Mexico from fabric cut and formed in the U.S. Although Special Regime trade flows are a subset of those entering under HTS 9802.00 provisions, the test for eligibility for the Special Regime quota exemption is more stringent than that for 9802.00, since the latter only requires

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[4] There are proposals in the Uruguay Round that would eliminate the MFA in three phases over ten years.

[5] The arrangements under HTS 9802.00.80 used to be known as the 807 regime under the TSUS system of tariff nomenclature. The 807 regime was introduced in 1963.

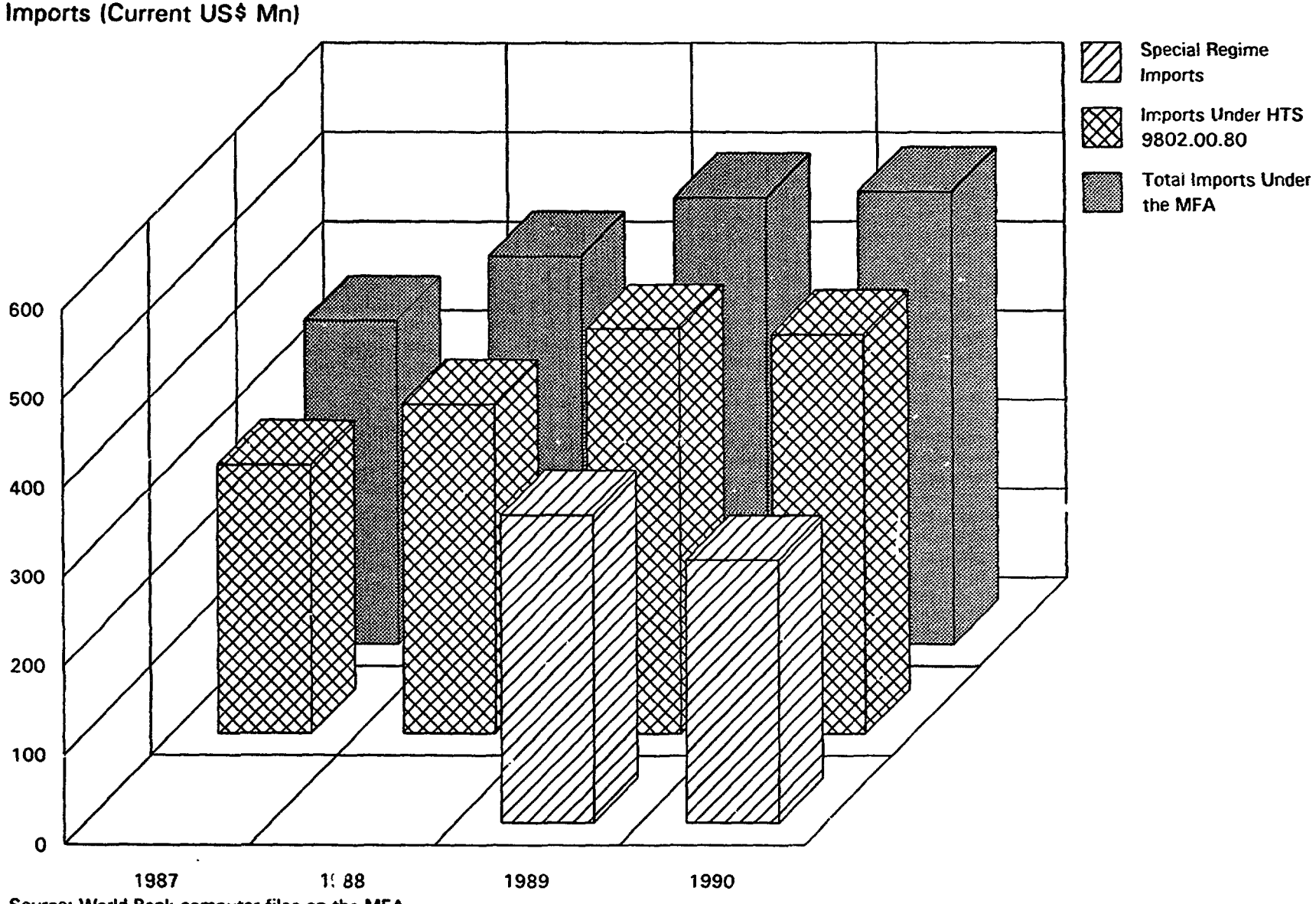
[6] A similar and more generous arrangement was introduced in 1986 for beneficiaries of the Caribbean Basin Initiative.

the cutting to take place in the U.S. Although Special Regime quotas are often filled, they are effectively non-binding, as evidenced by utilization rates of over 100 percent in some MFA categories in recent years.

Mexico's MFA quotas are distributed between the Special Regime and all other textiles and clothing exports, including the HTS 9802.00.80 regime. Increasingly, quotas have been concentrated in the Special Regime category. Many quotas on non-Special Regime items remain unfilled, particularly in apparel, made-ups and yarn , while restrictions on fabric exports appear to be more binding (Table 1).[7] Within each of these aggregates there can be significant variation in quota utilization rates. In the apparel sector, for example, quotas were binding throughout the 1980s on only three export items -- trousers, men's underwear and woven shirts. In addition to special status under production sharing arrangements with U.S. producers, apparel assembly operations in Mexico receive duty drawbacks under the Maquiladora program. Duty drawbacks give preferential tariff treatment to inputs imported into Mexico from non-NAFTA sources solely for the production of exports. In the NAFTA negotiations, the U.S. is concerned that duty drawbacks will give maquiladoras an unfair advantage over U.S. owned firms exporting to the U.S. market outside the Maquiladora program. To safeguard against this, the NAFTA contemplates the phase-out of all duty drawbacks, and other exceptions to tariff provisions between the U.S. and Mexico, at the same time that regular tariff barriers are lowered.

[7] A quota is considered binding when the utilization rate (shipments as a percentage of what the quota will allow) is above 85 percent.

Figure 1: Value of U.S. Imports of Apparel from Mexico Under the MFA, 1987-1990



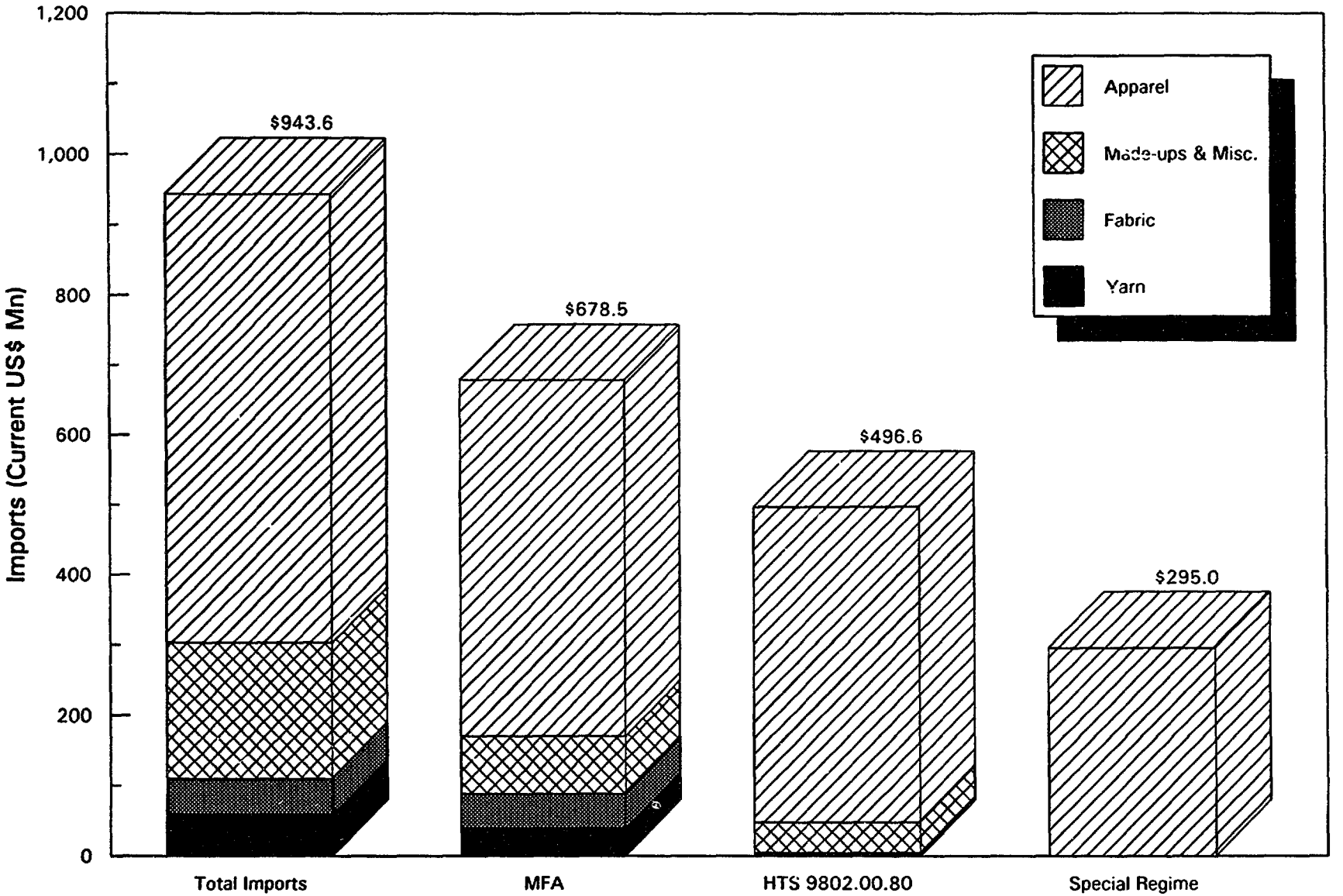
Source: World Bank computer files on the MFA

Mexico has enjoyed increased access to the U.S. market over the last few years, through quota growth and reduced effective tariff rates under HTS 9802.00.80 and the Special Regime, but in exchange for importing inputs from the U.S. Within the textile and apparel sector, apparel exports have grown the most, more than doubling from US$ 300 million in 1985 to over US$700 million in 1990. Figure 1 shows the distribution of U.S. apparel imports under the MFA from Mexico between 1987 and 1990. The vast bulk of apparel imports come in under the HTS 9802.00.80 regime, and under the Special Regime.

Figure 2 shows trends for all textiles and apparel imports from Mexico in 1990, not just MFA trade. Again, the predominance of apparel in Mexican exports to the United States is clear. Almost 70 percent of all Mexican textile and clothing exports were apparel items in 1990, and a further 10 percent were made-ups and miscellaneous items. The figure also shows that some US$265 million (or 28 percent) of Mexico's exports to the United States are not covered by the MFA. This non-MFA trade consists of some yarns, but is mainly apparel, made-ups and miscellaneous items.

There is some complementarity between the Mexican and U.S. industries, which has been encouraged by the design of the U.S. quota and tariff regime. The U.S. apparel industry has been squeezed by imports over the years (Lande, 1990), whereas the textile (mill) sector has done much better. In Mexico, by contrast, much of the mill sector has suffered from high costs, outdated technology, poor quality, prolonged machine down time, and excess capacity. It has been estimated that textile mill production costs are between 25 percent and 150 percent higher in Mexico than the United States (Botella et al., 1990). The apparel sector, however, has enjoyed vigorous growth, particularly through exports

Figure 2: Value of U.S. Imports of Textiles and Apparel from Mexico, 1990



Source: World Bank computer files on the MFA and Commerce Department data.

to the United States (Figure 1). Labor intensive operations in apparel manufacture have increasingly located in Mexico in order to take advantage of low wages relative to industrial country levels (Bailey and Eicher, 1991). Mexico is estimated to have a 30 to 50 percent production cost advantage over the United States in apparel finishing operations (Botella et al., 1990).

While the distinction between the mill and apparel sectors does not perfectly capture the competitive positions of Mexico and the United States, it does demonstrate a clear pattern. Only 18 percent of U.S. textiles and clothing exports in 1990 were apparel. By contrast, the comparable figure for Mexico was 67 percent. Some in favor of NAFTA argue that this complementarity will facilitate effective North American competition against Asian suppliers (USITC 2326, 1990). Whether or not there are competitive gains to be reaped from closer integration of the Mexican and U.S. textiles and apparel sector, the firm intention of U.S industry is to maintain arrangements that ensure a large share of U.S. yarn and fabric inputs (involving spinning, weaving, knitting and fabric finishing) into Mexican export production. New trading arrangements under NAFTA are likely to have negative consequences for the U.S. apparel industry, which have to be weighed against gains in the textiles sector.

For its part, Mexico seems willing to accept certain sourcing obligations with respect to the inputs into its intra- NAFTA exports, in return for unrestricted access for its apparel exports, as well as for sales of any non-apparel items such as acrylic yarn, polypropylene yarn, denim and cotton sheeting in which the country appears to have a competitive advantage (USITC 2353, 1991). Reluctance on Mexico's part to allow the uncompetitive part of its textiles industry to face North American competition may have been addressed to some extent through Mexico's autonomous program of trade liberalization over the last four or five years. It is likely, however, that significant new investments will be required in Mexico's textile sector to make it internationally competitive. Moreover, it should be noted that a weak link in Mexico's production chain is fabric finishing and dyeing, which makes it difficult for Mexican fabrics to be used in its apparel exports.

Overall, the Mexican industry has concentrated increasingly on labor-intensive finishing operations for apparel and other made-up textile articles, carried out on U.S. inputs. This characteristic of the Mexican textiles and apparel industry makes it possible to establish the kind of rules of origin regime discussed in the next section without provoking significant structural changes in trade patterns.

III. A NAFTA REGIME FOR TEXTILES AND CLOTHING

Rules of Origin

Bringing Mexico within a more or less unified textiles and apparel market under NAFTA will require replacing existing tariffs and quotas with rules of origin. In the absence of rules to determine the definition of domestic content, Mexico could become a transit point, or export platform, for textile and clothing sales by non-NAFTA members into the United States. NAFTA rules of origin will be modelled on the existing rules between Canada and the United States, but possibly with some key differences. The basic criteria for the Canada/U.S. rules of origin are not complex. It is their detailed application at the tariff line level that renders their effects obscure. Broadly speaking, there are two approaches to origin rules. One relies on a value added criterion: origin is conferred on a product if more than a specified percentage of its value added is of domestic origin. The other defines changes in tariff nomenclature headings through which a product must pass to attain domestic status.

The United States has traditionally favored the value added criterion, but moved towards international conformity by adopting nomenclature heading in the Canada/U.S. Free Trade Agreement. Under this agreement, there are 146 separate rules, expressed at varying levels of disaggregation, from single chapter headings down to six-digit classifications. These rules are supplemented by value-added criteria when they do not guarantee sufficient transformation. The supplementary rules require that at least 50 percent of the value added of the product is of within region origin.

The value-added criteria can be readily understood in terms of an accounting exercise that determines which inputs are local and which are foreign, but its interpretation leaves room for discretion on the part of customs authorities and creates uncertainty for traders. This discretionary element partly explains why nomenclature change is preferred. In addition, detailed information on production processes is essential to an analysis of a rule of origin based on value added criteria. An understanding of rules based on the nomenclature change only requires good knowledge of tariff headings along production

chains.

The concept of substantial transformation is crucial to rules of origin. Under the nomenclature change criterion, there can be simple or multiple transformation. Simple transformation is generally associated with a single tariff heading jump, reflecting the fact that manufacture has taken place within the preferential trading area. Double transformation requires that inputs into final production also have to pass the origin test. Triple transformation extends the origin test back to the previous stage in production. Double and triple transformation rules are generally associated with two and three changes in tariff classifications respectively.

In textiles and clothing, under simple transformation, origin will be conferred if apparel to be exported was cut and stitched within the region. Double transformation will require apparel to be cut and stitched in the region from fabric also formed within the region. Triple transformation will require that all production from yarn forward take place within the region.[8] A simple or multiple transformation criterion could apply to fabrics in the same way that it applies to apparel. It is possible to specify quadruple transformation for apparel by going back to the fiber stage, depending on whether spinning or preparing yarn is separable in the production process from fiber production.

Appendix Table A1 sets out the existing U.S./Canada origin rules in textiles, indicating the number of transformations required at various stages of production. The system relies primarily on simple and double transformation. Triple transformation might be required where end products do not involve a high degree of processing, so that both fabric and yarns must be of regional origin.

Two special tariff quotas are also included in the Canada/U.S. arrangements, allowing limited exemptions from the standard transformation requirements for inputs that are in scarce supply in the North American market. Since tariff quotas will almost certainly be a feature of the NAFTA origin rules on textiles and clothing, it is worth examining them briefly. One of these applies to wool and non-wool

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[8] This is the most likely outcome for the textiles and apparel sector under the NAFTA.

apparel cut and sewn within the region, but from fabrics not formed in the region. The other is a special tariff quota for Canada, involving non-wool fabric production from yarn produced or obtained outside the region up to an annual amount of 30 million square yards. This tariff quota permitting Canada to make fabrics for export from imported yarns is due to expire on December 31, 1992. The tariff quotas on apparel and fabrics are supposed to be revisited if circumstances change. According to early drafts of the NAFTA text, certain cut or "non-finished" fabrics will be subject to tariff quotas at varying levels depending on their fiber makeup.

The Restrictiveness of Rules of Origin

We first examine how restrictive rules of origin are likely to be for U.S.-Mexico textile and apparel trade based on the imported input content of present trade flows. As mentioned above, the high level of integration that already exists between U.S. and Mexico in the production of textiles leads us to suspect that imposing rules of origin will have little effect. We begin by examining the less stringent requirement of double transformation. The rules of origin established under the Canada/U.S. FTA generally require double transformation within the NAFTA region ("fabric forward" for apparel and "yarn forward" for fabrics), although the rule for non-apparel final goods may extend as far back as yarn in some cases. Special regime imports will certainly qualify for within-region status under such a double transformation requirement, since the fabric and apparel stages in the production chain occur within the NAFTA. These imports account for 31 percent of total U.S. imports of textiles and apparel from Mexico in 1990 (Figure 2).

Of the remaining 69 percent of Mexican exports, 22 fall under the HTS 9802 provisions. These trade flows need only satisfy a simple transformation criterion to qualify for preferential tariff provisions, since the fabric used to produce them need only be cut in the U.S., but may be of imported origin. There are at least two reasons, however, for arguing that they satisfy double transformation. First, a significant amount of trade entering under preferential arrangements (HTS 9802.00), but not under the Special

Regime, could qualify for Special Regime treatment (Lande, 1990). This trade is not declared under the Special Regime because of a perception that it is advantageous to keep the less restrictive Normal Regime quotas open by continuing to use them. The difference between the Special and Normal Regime HTS 9802.00 flows cannot, therefore, be taken as a strict indicator of less within-region input sourcing.

Second, very little U.S. textile consumption is imported. In 1990, for example, only 10 percent of all U.S. textile consumption consisted of imports, and some of these were from Canada and Mexico (American Textile Manufacturers Institute, 1991). It is thus not likely that the fabrics from which HTS 9802.00 apparel is manufactured originate outside the region to any significant degree. As far as HTS 9802.00 trade is concerned, then, there are good reasons to suppose that existing trade flows will not encounter many problems in meeting a double transformation rule of origin requirement.

What about non-HTS 9802.00 trade, which account for the remaining 47 percent of Mexico's exports of textiles and clothing to the United States? There is no guarantee that this trade will even satisfy a simple transformation requirement. In 1990, these flows were mainly apparel (43 percent) and made ups and miscellaneous items (32.5 percent), with the remaining 25 percent split evenly between fabric and yarn (Table 2). To assess the effects of rules of origin on these flows, an estimate must be made of their imported input requirements. For this purpose, we used the Mexican 1985 input-output table updated to 1989, together with the results of the 1989 Mexican Annual Survey of Manufactures, which has detailed information on the proportion of inputs imported and their source countries.[9]

The results of this exercise are reported in Table 3. Exported output in the first row includes US$109.7 million of fibers and fabrics, US$192 million of apparel and US$145.3 million of other textiles (made ups and miscellaneous). These figures are taken from the last column of table 2. In order to produce this flow of exports, intermediate inputs from all industries worth US$146.1 million were

[9] Because of the definitions in the Mexican production classification, we aggregated fiber and fabrics into one sector, leaving apparel and other final textile goods as additional sectors.

required: US$45.9 for Fiber and Fabric, US$40.1 for Other Textiles, and US$60.0 for Apparel (bottom row of Table 3). Fiber and Fabrics and Synthetic Fibers made up the majority of inputs into the three industries.

Table 4 shows our estimates of the proportion of imported inputs of textiles and apparel required to produce the above flows of exports, and their origin. The first four rows of Table 4 are a matrix of textile and clothing input requirements for Mexican textile and clothing output, taken from the corresponding rows of Table 3. The fifth row indicates the ratio of importedinputs to total inputs taken from the Mexican annual survey data. Subsequent rows show calculations of what these numbers mean in terms of 1990 imports into Mexico.

Two significant points stand out from the results. First, a relatively small proportion of inputs in these industries is imported: 13.3 percent for fiber and fabric, 26.3 percent for apparel, and 10.5 percent for other final textile goods. Together, these represent less than 1 percent of Mexico's actual 1990 imports of textiles and clothing. Second, a large proportion of imported inputs came from NAFTA countries, and will therefore qualify under origin requirements. The relevant shares were 40.2 percent for fiber and fabrics, 54.3 percent for apparel, and 97.2 percent made ups and other textile products. The remaining non-NAFTA imported inputs make up less than one percent of total Mexican imports of textiles and apparel. These are the very imports that will be affected by the imposition of double transformation rules of origin. Based on the above, the imposition of a double transformation rule of origin on Mexico's exports to the United States will have a limited effect on Mexico's pattern of intermediate input use. Any resulting shift in this pattern towards regional input sources brought about by the NAFTA could probably be achieved with relative ease. These results also have implications for duty drawback negotiations, suggesting that they are not as important an issue in the textiles and apparel sector as they might be in other industries.

Table 2. U.S. Imports of Textiles and Apparel from Mexico 9802 and Non-9802 Flows, 1990 (Millions Current U.S. dollars)

	Total Imports	% by Product	MFA Imports	% of Total	9802 Imports	% of Total	Non-9802 Imports	% of Total
Total	943.6	100	678.4	72	496.6	53	447.1	47
Apparel	640.9	68	508.3	79	312.1	70	191.9	30
Made-Ups	193.0	21	81.3	42	47.6	25	145.4	75
Fabric	50.3	5	48.6	97	0.0	0	50.3	100
Yarn	59.4	6	40.2	68	0.0	0	59.4	100

Source: World Bank Computer fiels on the MFA and U.S. Department of Commerce data.

Table 3. Intermediate Input Requiremetns for Non-9802 Exports (Millions of Dollars)

	Fibers and Fabrics	Other Textiles	Apparel
OUTPUT:	109.757	145.353	1.035
SUPPORTING INPUTS:			
Agriculture and Forestry	8.34	8.20	1.04
Fibers and Fabric	11.04	22.91	18.99
Other Textiles	0.06	0.00	5.57
Apparel	0.02	0.00	0.06
Paper and Cardboard	0.33	0.37	1.89
Printing and Publishing	0.31	1.69	1.17
Petroleum Refining	0.07	0.19	0.13
Basic Chemicals	2.76	3.42	0.91
Synthetic Fibers	21.44	0.0	22.38
Others	1.62	3.36	7.90
TOTAL	45.97	40.13	60.03

Source: Calculated using Mexican Input-Output Table updated to 1989.

Table 4. Imported Input Requirements for Non-9802 Exports And Their Region of Origin, 1990 (Millions of Dollars)

INPUT SUPPLYING INDUSTRIES	INPUT DEMANDING INDUSTRIES: Fiber and Fabrics	Other Textiles	Apparel	Total
1. Fiber and Fabrics	11.04	22.91	18.99	52.94
2. Other Textiles	0.06	0.00	5.57	5.63
3. Apparel	0.02	0.00	0.06	0.08
4. Total Input Requirements	11.12	22.91	24.62	58.65
5. Ratio of Imported Inputs	0.13	0.26	0.11	
6. Estimated Imported Inputs	7.08	1.48	0.01	8.57
7. Percent NAFTA Sourced Inputs	0.40	0.54	0.97	
Estimated Imported Inputs:				
8. Of NAFTA Origin	2.85	0.81	0.01	3.66
9. Of Non-NAFTA Origin	4.23	0.68	0.00	4.91
Memo:				
Total Mexican Imports of Textiles and Apparel	485.9	346.79	83.47	916.17
Imported Inputs as Percent of Total	1.46	0.43	0.01	0.94

Source: Input Requirements from Table 3. Ratio of Imported to Total Inputs is from the Mexican Annual Survey of Manufactures data.

What about a triple transformation rule?[10] Under such a rule, trade in textiles and apparel between NAFTA countries will have to be made from yarn produced within the region. The question, then, is how far Mexican (or U.S.) apparel production relies on imported yarn. Precise data are not readily available. However, Mexican import data for 1990 indicate that only about one- third (35.2 percent) of Mexico's imports of fibers and yarns come from non-NAFTA sources. In addition, Botella et al. (1990) report that only 7 percent of all fiber and yarn consumption in Mexico was imported in 1988 (the latest figure available). This suggests, therefore, that about 2.35 percent of Mexican fiber and yarn consumption comes from non-NAFTA sources (one third of 7 percent) and the triple transformation rule will not prove onerous in terms of current consumption and trade patterns. Moreover, to the extent that problems do arise, such that certain existing trade flows do find themselves on the wrong side of the origin rules, there will be scope for exemptions based on negotiated tariff quotas. The specification of the size and coverage of tariff quotas that exempt Mexican exports from restrictive rules of origin will be an important element in the NAFTA negotiations.

Finally, what of textile and clothing exports from Mexico to its NAFTA partners that qualify neither under the rules of origin nor for favorable treatment under tariff quotas? Investments in the production of non-qualifying textile and clothing items for export are unlikely to be forthcoming unless these exports receive treatment more favorable than that generally available to third parties. The question is whether the existing MFN-cum-MFA regime is retained for these trade flows. A proposal by the American Textile Manufacturers Institute (ATMI) and the American Association of Manufacturers of Apparel (AAMA) seems to envisage a suspension of quotas, provided "acceptable" rules of origin are adopted, although it is unclear whether this refers to all Mexican exports or only those qualifying for duty free treatment. At the same time, there is mention of a safeguard with a snapback mechanism that would

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[10] Two prominent textile and clothing industry associations have put this position forward in the NAFTA negotiations. The American Textile Manufacturers Institute (ATMI) and the American Apparel Manufacturers Association (AAMA) have proposed yarn forward as the origin rule for the entire sector (ATMI Press Release, October, 1991).

impose further tariffs or quantitative restrictions under certain conditions. Fear of the "export platform" effect is likely to induce the U.S. textile industry to lobby hard against any preferences at all for non-qualifying exports from Mexico.

IV. TRADE CREATION, TRADE DIVERSION, AND PREFERENTIAL FREE TRADE

While present trade flows will not be significantly affected by the imposition of rules of origin, there is still a possibility that they may hamper future trade increases. We calculated the trade creation and trade diversion effects of going to free access for Mexico's exports to the United States for all of the 138 MFA categories on which Mexico faces restrictions and for non-MFA trade. These calculations were made using the standard partial equilibrium reduced form equations for trade creation and diversion, as modified in Laird and Yeats (1991) to take account of the price effects of nontariff barriers (in this case quotas). In addition, trade flows entering under HTS 9802.00 were treated separately from those entering under the normal regime since these two flows face different effective tariff rates (see Table 1). Details of the calculations appear in Appendix II.

Our least conservative estimates used a compensated import demand elasticity of -3, and an infinite elasticity of supply (set at 99). This resulted in a total growth of Mexico's exports of textiles and clothing to the United States of 42 percent over the 1990 base (Table 5). As relevant, perhaps, as the magnitude of the expansion is the very small part of this total increase that is accounted for by trade diversion. Of the total estimated trade expansion, 52.2 percent came as trade creation previously under HTS 9802.00, 46.2 percent as trade creation under non-preferential trade, and only 1.6 percent was trade diversion. This low figure is explained by Mexico's small share in total U.S. textile and apparel imports (3 percent). It is also significant that over one half of the projected increase came from trade previously under HTS 9802.00 provisions, even though these face significantly lower trade barriers. This leads us to conclude that trade growth under the NAFTA will not be significantly hampered by rules of origin restraints.

Table 5. Trade Creation and Trade Diversion Effects
Thousands of U.S. dollars

Elasticity of Import Demand:	-3.00
Elasticity of Supply:	99.00

	1990 Imports	-- Trade Creation -- 9802	Non-9802	Trade Diversion	Total New Trade	Percentage Growth
MFA:						
Apparel	507,436	198,717	42,853	1,972	243, 542	48.0
Fabric	48,579	203	14,436	1,844	16,483	33.9
Made-Ups	81,367	6,571	12,559	2,081	21,211	26.1
Yarn	40,181	13	12,743	399	13,155	32.7
Total	677,563	205,504	82,591	6,296	294,391	43.4
NON-MFA:						
Apparel	132,601	0	50,553	101	50,654	38.2
Fabric	1,756	0	768	1	769	43.8
Made-Ups	19,238	0	7,854	15	7,869	40.9
Yarn	111,635	0	40,215	80	40,295	36.1
Total	265,230	0	99,390	197	99,587	37.5
Grand Total	942,793	205,504	181,981	6,493	393,978	41.8
Percentage		52.2	46.2	1.7	100.0	

Source: Calculated using World Bank data files and U.S. Department of Commerce data.

As to the size of the projected increase in trade, 42 percent is small, considering that Mexican exports of apparel to the United States more than doubled between 1986 and 1990, notwithstanding the continued existence of tariffs and some binding quotas. As already noted, this is an upper bound estimate. Sensitivity analysis on the elasticities is reported in Appendix Table 2, with demand elasticities of -2 and -1.5, and supply elasticities of 5 and 2. With more conservative elasticity estimates, the trade creation goes as low as 13 percent of 1990 exports.

The relative modesty of the effects of trade liberalization in this sector suggests that barriers to Mexico's textile and clothing exports are not significant. Indeed, effective tariffs have been lowered through the HTS 9802 arrangements, and many quotas are not binding (Table 2). The results also suggest that if Mexico is to benefit significantly from NAFTA in this sector, it will be through the dynamic effects of trade liberalization. To the extent that those dynamic benefits require new investment, and the rules of origin inhibit new investments from third countries (unless they are tied into North American input sources), there is at least a doubt about the long term benefits of NAFTA in this sector. The extent of these benefits will depend vitally on the supply of North American investment.

V. EXTRA-NAFTA TRADE PROTECTION IN MEXICO AND THE UNITED STATES

In this section we estimate the cost to Mexican consumers of imposing a common external tariff at the U.S. level of protection. Such a tariff might be set in place if Mexico and the United States were to enter into a customs union. Both the Mexican and U.S. textile and clothing industries have suggested that Mexico might consider such an arrangement, restricting its textile and clothing imports from non-NAFTA sources in a similar fashion to the United States.[11] Rules of origin will be preferable to such an arrangement if they allowed Mexican consumers of final goods to enjoy imports from non-NAFTA sources at lower prices. The extent to which this potential gain will accrue under an FTA depends on the difference between the level of the common external tariff and Mexico's independent tariff structure.

Table 6 presents the tariff levels in both countries aggregated using Mexican import weights.[12] Mexico's nominal tariffs in the textile and clothing sector in 1990 were slightly higher than U.S. tariffs would have been if applied to Mexican imports. The trade-weighted tariff was 13.7 percent for the United States, and almost 15 percent for Mexico. For apparel, fabric, and yarn, the difference between the two average rates was less than 2 percent. But for made ups the Mexican average tariff is almost double the U.S. level. The final column in Table 6 shows the U.S. effective tariff, adjusted for the price effect of restrictive MFA quotas. The tariff equivalents of quotas reported here are taken from 1987 calculations (USITC 2222, 1989) and should be treated as approximations. The addition of these nontariff barrier equivalents increases the weighted average tariff from 14 percent to 20 percent for the United States. This increase is largely due to restrictions on apparel, and most of the average effective tariffs for fabrics, made ups and miscellaneous goods, and yarn are not significantly different from the

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[11] It is important to stress that such an arrangement is not being considered in the NAFTA negotiations. We establish the possibility here only for the sake of comparison, to highlight the possible benefit of rules of origin to Mexican consumers.

[12] This procedure abstracts from the fact that the application of the U.S. tariff structure of Mexico's imports will change the composition of such imports.

unadjusted rates.

The cost to consumers of imposing either tariff structure can be measured as a percentage of GNP using a common approximation:[13]

$$(1) \qquad \frac{DWL}{Y} = \frac{1}{2} r^2 \cdot \alpha \cdot e_m$$

where $r = t/(1+t)$ and t is the ad valorem tariff rate, α is the fraction of GNP spent on imports of textiles and apparel, and e_m is the compensated own price elasticity of demand for imports. Our calculations, comparing Mexican tariffs with U.S. effective tariffs including the mark-up effects of MFA quota restrictions, are presented in Table 7 for three values of the elasticity of demand for imports, ranging from -1 to -5. In the extreme case, for an elasticity of -5, the consumer loss from both tariff structures is similar, amounting to close to one percent of GNP. The loss from imposing the U.S. effective tariff is slightly higher because of the higher protection on apparel. However, the difference between the cost of the two structures is minimal. Imposing the U.S. level of protection on Mexican imports in 1990 would have resulted in an additional loss to consumers (beyond that resulting from the already existing Mexican level of protection) of .019 of one percent of 1990 GDP. In the more likely case of an elasticity of demand for imports of -2 the figure is .007 of one percent of GDP.

Although there are some differences between the Mexican and the U.S. tariff structures (including the mark-up effects of quotas) our calculations indicate that the consumer loss from imposing either country's level of protection on Mexican imports is extremely similar. Thus, rules of origin imposed after the NAFTA has taken place will not be significantly superior to the imposition of a

[13] A derivation is given in Vousden (1990) p. 49.

common external tariff at the present U.S. level of protection.[14] Further benefits to the Mexican consumer will depend on lowering Mexican tariffs to non-NAFTA imports.

[14] This conclusion should be tempered by the fact that it is not only the level of tariffs, but their variation across products that matters. If we were able to examine effective protection rates, i.e., protection to value added), it is likely that the U.S. tariff structure will be more restrictive than Mexico's, since the variation in U.S. tariffs is much higher (Table 6).

Table 6. Trade-Weighted Tariff Averages for Textiles and Apparel Mexico and U.S., 1990

	MEXICAN TARIFF	U.S. TARIFF	U.S. EFFECTIVE TARIFF*
All Trade	14.9	13.7	20.4
Non MFA	3.9	6.0	n.a.
MFA CATEGORIES:			
Apparel	20.0	17.8	26.9
Fabric	15.2	15.5	16.9
Made-Ups	19.3	7.7	7.9
Yarn	12.2	10.2	11.1

Note: U.S. averages are calculated using Mexican import weights.
*U.S. effective tariff includes MFA quota premia for 1987 claculated by USTIC 2222(1989).
Source: Mexican import and tariff data from SECOFI. U.S. Import data form U.S. Department of Commerce, Bureau of the Census.
Source: Mexican import and tariff data from SECOFI. U.S. Import data from U.S. Department of Commerce, Bureau of the Census.

Table 7. Comparision of Consumer Dead-Weight Loss from Mexico and U.S. Tariff Structures, 1990 (Percent of Mexican 1990 GDP)

	Loss from Mexican Tariff	Loss from U.S. Tariff	Difference
Elasticity = -1			
All Trade	0.187	0.191	-0.004
Apparel	0.077	0.079	-0.002
Fabric	0.061	0.061	0.000
Made-Ups	0.014	0.012	0.002
Yarn	0.010	0.010	0.000
Other	0.025	0.029	-0.004
Elasticity = -2			
All Trade	0.374	0.382	-0.008
Apparel	0.155	0.159	-0.004
Fabric	0.122	0.122	0.000
Made-Ups	0.029	0.025	0.004
Yarn	0.019	0.019	0.000
Other	0.050	0.057	-0.008
Elasticity = -5			
All Trade	0.935	0.954	-0.019
Apparel	0.387	0.496	-0.010
Fabric	0.304	0.304	0.000
Made-Ups	0.072	0.062	0.010
Yarn	0.049	0.048	0.000
Other	0.124	0.143	-0.020

Source: See Table 7 and Text. Mexican 1990 GDP of $236,040 million is from INEGI, Cuentas Nacionales de Mexico, 1991.

VI. CONCLUSIONS

Because of reluctance on the part of the United States to reduce the high level of protection of its domestic textiles and clothing industry, trade liberalization benefits accruing under NAFTA to Mexico in this sector will be constrained. Improved access to the U.S. market will be exchanged for commitments on input sourcing that will largely tie Mexico's industry to North American (including Mexican) inputs. Since Mexico only accounts for 3 percent of U.S. imports of textiles and clothing, it is not fear of the inroads Mexico could make into the U.S. market from its existing production base that explains U.S. insistence on input sourcing restrictions. Rather, it is the scope for unrestricted third country investment in Mexico to serve the U.S. market that prompts protection against foreign sourcing.

Rules of origin will replace existing tariff and quota restrictions faced by Mexican textiles and clothing exports to the U.S. market. Unlike the simple transformation requirements facing most products, textiles and clothing exports will have to go through two or three substantial transformation tests. Mexican exports to the United States do not rely to a significant extent on inputs imported from third countries, however, so such requirements will be easily met. Dependence on U.S. input sources has been encouraged for many years under production sharing arrangements, where tariffs are charged only on value that is added outside the United States, and quotas are expanded in favor of products made form U.S. inputs. Any difficulties faced by specific products under multiple transformation origin rules can be dealt with through limited tariff quota exemptions.

The size of the benefit accruing to Mexico under NAFTA as a result of free access to the U.S. market depends in part on existing restrictions, as well as the base from which exports are expanding, and the price elasticities of supply and demand. Under the most optimistic elasticity assumptions, the trade expansion benefits of liberalization are not as great as might be expected, particularly in the light of recent export growth. This is partly because, under the kinds of preferential arrangements mentioned above, Mexico does not face very high barriers on average to its textiles and apparel exports. This

suggests that the post-NAFTA restrictive policy regime including rules of origin will not be a significant obstacle to expanding trade. Further, it suggests that if significant benefits do result from NAFTA in this sector, they will be longer term and dynamic in nature, relying particularly on new investments.

The establishment of a NAFTA should thus provide benefits to both Mexican producers and consumers of apparel and textiles. Mexican producers of apparel will have improved access to the U.S. market, which at present absorbs more than half of Mexican exports. Consumers will have unrestricted access to U.S. products, at present the source of 55 percent of imports in the sector. Short-term gains will come from immediate liberalization but these will be relatively modest because trade barriers in this sector are already low. Medium terms gains will come from income growth in the Mexican market, and these will be received by both Mexican and U.S. producers. Long-term gains in international competitiveness may also be seen from the "rationalization" of the industry as it moves to benefit from the respective advantages of labor cost and technology of each market.

However, these benefits will come at a cost. First, is the disappearance of the long protected indigenous textile industry in Mexico. With the rapid decline in tariff barriers since 1987 the industry is already hard hit. Preliminary estimates put Mexican manufacturing GDP growth at 1.1 percent for 1991, while the textile industry's contribution to output fell by 8.9 percent. It is unlikely that the industry will be able to compete with duty free U.S. textiles after the NAFTA comes into effect. Its salvation will lie with foreign investment and joint ventures with producers possessing competitive technology. In the case of U.S. investment, however, proximity and low trade barriers may imply that there is little incentive for capital flows to replace trade.

Another hidden cost of the NAFTA is the limited access to third party non-NAFTA inputs for consumers and producers in Mexico. While this cost may seem small now, compared to the gains from access to the U.S. market, it may grow higher if NAFTA production becomes relatively less efficient compared to world markets. In the long term, rules of origin and protected markets may discourage

investment in Mexico from non-NAFTA countries and leave Mexican industry tied to U.S. production and technology.

REFERENCES

American Textile Manufacturers Institute, Inc., (1991), Textile Hi-lights, December 1991.

Bailey, Thomas and Theo Eicher, (1991), "The Effect of a North American Free Trade Agreement on Apparel Employment in the U.S." Prepared for the Bureau of International Labor Affairs, U.S. Department of Labor.

Botella, Ovidio, Enrique Garcia C., and Jose Giral B., (1991), "Textiles: Mexican Perspective" in U.S. Mexican Industrial Integration, The Road to Free Trade. Sidney Weintraub, Luis Rubio F. and Alan D. Jones, eds. Westview Press 1991.

Canada, Department of External Affairs, (1988), The Canada-U.S. Free Trade Agreement, Second Edition, Minister of Supply and Services, Ottawa, 1988.

Cline, W. (1987), The Future of World Trade in Textiles and Apparel, Institute for International Economics, Washington, D.C.

Erzan, Refik, Junichi Goto and Paula Holmes (1990), "Effects of the Multi-Fibre Arrangement on Developing Countries' Trade: An Empirical Investigation" in Textiles Trade and the Developing Countries: Eliminating the Multi-Fibre Arrangement in the 1990s, Carl B. Hamilton, ed. The World Bank, Washington, D.C.

Laird, Samuel and Alexander J. Yeats, (1990), "Two Sources of Bias in Standard Partial Equilibrium Trade Models," World Bank, Policy Research and External Affairs Working Paper No. 374. Washington D.C. 1990

Lande, Stephen L. (1991), "Textiles: U.S. Perspective" in U.S. Mexican Industrial Integration, The Road to Free Trade. Sidney Weintraub, Luis Rubio F. and Alan D. Jones, eds. Westview Press 1991.

Sawyer, W. Charles and Richard L. Sprinkle (1988), "Alternative Empirical Estimates of Trade Creation and Trade Diversion: A Comparison of the Baldwin-Murray and Verdoorn Models" Weltwirtschaftliches Archiv, Vol 125, 1988 61-73.

United States Department of Commerce, (1990), Office of International Agreements. Expired Performance Reports. Washington, DC, 1991.

United States International Trade Commission, 2222 (1989), The Economic Effects of Significant U.S. Import Restraints, Phase 1: Manufacturing, Report to the Committee on Finance of the United States Senate, Washington, D.C. 1989.

United States International Trade Commission, 2353 (1991), The Likely Impact on the United States of a Free Trade Agreement With Mexico, Report to the Committee on Ways and Means of the United States House of Representatives and the Committee on Finance of the United States Senate, Washington, D.C. 1991. U.S. International Trade Commission, 2326

United States International Trade Commission, 2469 (1991), Production Sharing: U.S. Imports Under

Harmonized Tariff Schedule Subheadings 9802.00.60 and 9802.00.80, 1987-1990, Washington, D.C. 1991.

Vousden, Neil (1990), The Economics of Trade Protection, Cambridge University Press, 1990.

APPENDIX I.

Table A1. U.S.-Canada Rules of Origin for Textiles and Apparel
(Harmonized Tariff System Classifications in Parentheses)

Product	Regional Input Requirements	Number of Transformations
Silk (50)		
Yarn (5004-5006)	none	simple
Fabrics (5007)	none	simple
Wool (51)		
Yarn (5106-5110)	none	simple
Fabrics (5111-5113)	Yarn (5106-5110)	double
Cotton (52)		
Yarn (5204-5207)	none	simple
Fabrics (5208-5212)	Yarn (5204-5207)	double
Flax, Jute, Sisal, and Paper Yarn (53)		
Yarn (5306-5308)	none	simple
Fabric (5309-5311)	Yarn (5306-5308)	double
Man-Made Filaments (54)		
Yarn (5401-5406)	none	simple
Fabrics (5407-5408)	Yarn (5401-5406)	double
Man-Made Staple Fibers (55)		
Tow and Fibers (5501-5507)	none	simple
Thread and Yarn (5508-5511)	none	simple
Fabrics (5912-5516)	Yarn (5508-5511)	double

Table A1. (cont.) Product	Regional Input Requirements	Number of Transformations
Wadding, Felt and Non-Woven Textiles, Twine and Cordage (56)		
All Products (5601-5609)	Yarn and Fabric of Wool, Cotton, or Hard Fibers, or any Man-Made Filaments or Staple Fibers (5106-5113, 5204-5212,5306-5311, 54 55)	Double or Triple
Carpets and Other Textile Floor Coverings (57)		
All Products Except of Jute (5701-5705)	Yarn and Fabric of Wool, Cotton, or Hard Fibers, or any Man-Made Filament or Staple Fibers (except Filament Tow and Fibers) (5106-5113, 5204-5212,5306-5309,5311,54,5508-5516)	Double or Triple
Jute Products (Various)	Yarn (but not Fabric) (5310)	Simple or Double
Special Woven Fabrics (58)		
All Products (5801-5811)	Yarn and Fabric of Wool, Cotton or Hard Fibers, or any Man-Made Filaments or Staple Fibers (5106-5113,5204-5212,5306-5311,54,55)	Double or Triple

Table A1. (cont.) Product	Regional Input Requirements	Number of Transformations
Impregnated, Coated, Covered or Laminated Fabrics (59)		
All Products (5901-5911)	Fabrics of Wool, Cotton, Hard Fibers, Man-Made Filaments, or Staple Fibers (5111-5113,5208-5212,5309-53611,5407-5408,5512-5516)	Double
Knitted and Crocheted Fabrics (60)		
All Products (6001-6002)	Yarn and Fabric of Wool, Cotton, or Fabric of Hard Fiber, or any Man-Made Filaments or Staple Fibers (5106-5113,5204-5212,5309-5111,54,55)	Double or Triple
Apparel, Knitted or Crocheted (61)		
All Products (6101-6117)	Fabrics of Wool, Cotton, Hard Fibers, Man-Made Filaments or Man-Made Staple Fibers (Provided goods are cut or knitted and sewn or otherwise assembled within the region) (5111-5113, 5208-5212, 5309-5311, 5407-5408, 5512-5516,6001-6002)	Double

Table A1. (cont.) Product	Regional Input Requirements	Number of Transformations
Apparel, not Knitted or Crocheted (62)		
All Products (6201-6217)	Fabrics of Wool, Cotton, Hard Fibers, Man-Made filaments, or Man-Made Staple Fibers (Provided goods are cut and sewn within region) (5111-5113, 5208-5212, 5309-5311, 5407-5408,5512-5516, 6001-6002)	Double
Other Made-up Articles (63)		
All Products (6301-6309)	Yarn and Fabric of Wool, Cotton, Hard Fibers, or any Man-Made Filaments or Staple Fibers (Provided goods are cut and sewn within region) (5106-5113, 5204-5212, 5306-5111, 54, 55)	Double or Triple

Source: USA/CANADA Free Trade Agreement.

APPENDIX II. Trade Creation and Diversion Calculations

For trade flows entering under HTS 9802, trade creation was calculated for each apparel and textile category i as follows:

$$TC9802_i = M9802_i \cdot ed \cdot \frac{(dt_i \cdot \omega_i + dN_i)}{(1+\omega_i t_i + N_i)(1-\frac{ed}{es})} \quad (2)$$

where M9082 is the value of the original trade flows entering under HTS 9802, ed is the compensated own price elasticity of import demand and es is the elasticity of supply, t is the pre- liberalization tariff and N is any price effect of other trade barriers (in this case MFA quotas, when they are binding). ω is one minus the U.S. customs ratio presented in the aggregate in Table 4 --i.e. the proportion of value added in Mexico on which the tariff is levied. For flows not under HTS 9802, the same formula was used excluding the w term and based on non-HTS 9802 flows. Trade diversion is calculated weighting the trade creation results by the ratio of imports from the preferred partner (Mexico) to total imports (Sawyer and Sprinkle, 1988).

It is important to note some of the limitations of these kinds of calculations. First, they do not measure welfare in any sense, only changes in trade flows. Second, they are partial estimates, capturing nothing of the ripple effects throughout the economy provoked by relative price changes. Third, they are static, building only on existing trade flows and ignoring the dynamic effects of expanded trade. Finally, the trade effect estimates rely crucially on supply, demand and substitution elasticities, most of which are made up. Many more sophisticated models suffer from some of these drawbacks, especially the failure to capture the dynamic effects of trade liberalization and resort to inventiveness for the elasticity estimates. Despite these drawbacks, these estimates provide some indication of likely consequences from trade liberalization.

Appendix Table 2 : Trade Creation and Trade Diversion Effects
Sensitivity Analysis
(Percentage Increase in Trade Flows)

		Elasticity of Supply		
		99	5	2
Mean				
Elasticity of Demand	-3.00	41.79	28.28	18.68
	-2.00	29.35	21.78	15.48
	-1.50	22.21	17.58	13.23

Source: Trade Creation Calculations.

Table A3: NAFTA Imports of Textiles and Apparel from Leading Suppliers, 1990

	EXPORTER								
	NAFTA				BIG THREE				
Importer	Total	Canada	Mexico	United States	Total	China	South Korea	Taiwan (ROC)	World
	—— Value of Trade (Current Mn US$) ——								
NAFTA									
Fibers	404	110	35	259	78	14	33	32	988
Fabric & Yarn	2,216	411	323	1482	2060	823	699	538	9620
Apparel	1,381	250	727	404	10756	4036	3889	2831	29973
Total	4,002	771	1084	2146	12894	4873	4621	3400	40581
Canada									
Fibers	141	n.a.	0	141	4	0	1	2	177
Fabric & Yarn	1206	n.a.	26	1180	305	96	138	71	2338
Apparel	222	n.a.	9	212	864	300	373	192	2407
Total	1569	n.a.	35	1534	1173	396	512	265	4922
Mexico									
Fibers	124	5	n.a.	118	2	1	1	0	183
Fabric & Yarn	307	5	n.a.	302	72	24	48	0	531
Apparel	192	0	n.a.	192	37	29	7	0	395
Total	623	11	n.a.	612	111	54	56	0	1108
United States									
Fibers	139	104	35	n.a.	73	13	31	30	628
Fabric & Yarn	703	407	297	n.a.	1682	703	513	467	6751

Apparel	967	250	717	n.a.	9855	3707	3509	2639	27172
Total	1810	761	1049	n.a.	11610	4422	4053	3135	34551
	—— Share of Total Textile & Apparel Imports (Percent) ——								
NAFTA	10	2	3	5	32	12	11	8	100
Canada	32	n.a.	1	31	24	8	10	5	100
Mexico	56	1	n.a.	55	10	5	5	0	100
United States	5	2	3	n.a.	34	13	12	9	100

Source: UNSO COMTRADE Data Base
Note: Products are defined in SITC Rev. 2 as follows: Fibers (26), Fabric & Yarn (65), Apparel (84).

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